STATE OF MONTANA

Survey & Inventory Protocols in Montana

Upland Game Birds

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3/1/2016

Abstract

Montana Fish, Wildlife and Parks (FWP) staff conduct survey and inventory efforts for certain upland game birds, including sage-grouse, sharp-tailed grouse, pheasants, and turkeys. In 2015 lek counts for sage-grouse and sharp-tailed grouse were conducted in Regions 3-7 and in Regions 4, 6 and 7, respectively. The earliest lek counts recorded in our statewide database are 1952-53 for sage-grouse and 1956-57 for sharp-tailed grouse. In 2015, 79.6% and 70.3% of sage-grouse and sharp-tailed grouse counts were conducted between March 29 and May 2, respectively. Most grouse leks are surveyed from the ground although Region 7 surveys a large number of leks from the air. FWP's statewide database has 1,745 and 2,002 valid locations for sage-grouse and sharp-tailed grouse leks, respectively. In 2015 a total of 918 sage-grouse and 202 sharp-tailed leks were surveyed. Aerial and ground surveys are conducted to locate sage-grouse winter ranges in some areas. Pheasant crow count routes have been conducted in Montana since at least 1947. Crow count surveys are conducted in Regions 4-7. Region 6 also conducts winter pheasant surveys to determine whether or not pheasant feeding programs are having an impact on populations. One aerial survey for turkeys is conducted in Region 7 along the Yellowstone River between Glendive and Crane. Some Regions collect wings from upland game birds in order to determine age and sex ratios and to measure productivity. Data collected on upland game birds is generally not used to change seasons in the short-term but might be used to justify season changes when long-term data suggest a changing trend in the population. Sage-grouse are an exception to that rule, and between 2005 and 2013 the number of sage-grouse males per lek was used to set seasons for sage-grouse in a modified adaptive harvest management format. Biologists also reported using data for informing interested parties about upland game bird population trends, to predict numbers of upland game birds for future hunting seasons, and to show population trends in land purchase proposals. Data were also used in comments on proposed state and federal land exchange projects, on subdivisions, on state and federal land use plans such as grazing changes and on oil and gas leases and drilling on federal and state lands. Biologists stressed the importance of having long-term trend data available for informed comment on unforeseen future developments.

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INTRODUCTION

Montana Fish, Wildlife and Parks (FWP) has the authority and responsibility to manage wildlife in the state of Montana. There are over 500 species of mammals, birds, reptiles and amphibians, and FWP regulates harvest of 55 of those species that are valued for their meat, fur or as "trophies" (Montana Fish, Wildlife and Parks, 2006). In addition, FWP has the responsibility to manage other nongame wildlife for human enjoyment, scientific purposes and to ensure their persistence into perpetuity. FWP personnel survey and inventory (S&I) many species of wildlife, and the data collected provide the scientific basis for management of those species and their habitat. Data collected are used to inform decisions by the Legislature, FWP Commission, other organizations with wildlife interests and governmental agencies. S&I allows FWP to monitor trends in wildlife populations in order to inform management decisions that affect 1) population abundance, 2) wildlife conflicts, 3) hunting and harvest opportunity, 4) habitat management and land use decisions and 5) other recreational opportunities for diverse user groups. S&I is an important part of FWP's mission which states that FWP, through its employees and citizen commission, provides for stewardship of the fish, wildlife, parks and recreational resources of Montana while contributing to the quality of life for present and future generations.

FWP has worked towards becoming more consistent with S&I protocols and has produced several documents that address protocols for individual species. The Montana Bighorn Sheep Conservation Strategy (Montana Fish, Wildlife and Parks, 2010); Management Plan and Conservation Strategies for Sage Grouse in Montana (Montana Sage Grouse Work Group, 2005); Montana Final Elk Management Plan (Montana Fish, Wildlife and Parks, 2005) and Adaptive Harvest Management (Montana Fish, Wildlife and Parks, 2001) address S&I protocols for bighorn sheep, sage-grouse, elk and deer, respectively.

In order to further improve our S&I protocols the 2004 Montana Legislature approved a new S&I specialist position for FWP which was not filled until December of 2010. The primary focus of this new position was to be on decision/operations analysis, wildlife monitoring protocols, and evaluation of data at local, regional, and statewide scales. In addition, the position was created to review existing survey protocols and provide recommendations that may modify those protocols to better meet program needs.

This document will focus on documenting the differences and similarities of protocols used in surveys of upland game birds (UGBs), including sage-grouse, sharp-tailed grouse, ruffed grouse, dusky grouse, spruce grouse, ring-necked pheasants, gray partridge, and chukar partridge, and will articulate how S&I data fits into wildlife management and conservation actions for these species. Besides cataloging S&I protocols, this analysis may be used by FWP to increase efficiency and distribution of S&I dollars. This report does not cover telephone harvest surveys, which are used to estimate hunter effort and harvest for all UGB species.

This UGB report is the sixth report, with the other 5 reports covering S&I protocols for 1) antelope, 2) elk, 3) mule deer, 4) white-tailed deer and 5) a summary of a survey on S&I protocols that was completed by wildlife biologists across the state.

INFORMATION COLLECTION AND ASSEMBLY METHODS

To collect the necessary information on S&I protocols, interviews were conducted with most of the wildlife biologists responsible for game species management across the state. Each biologist was asked a series of questions about their S&I protocols. Biologists were asked to describe which species they surveyed, time-period for the survey, where the survey area was located, type of vehicle utilized, periodicity of the survey, and how the survey was done including time of day and flight patterns when aircraft were used. The primary emphasis of this undertaking was to gather information about FWP S&I protocols for UGBs including sage-grouse, sharp-tailed grouse, pheasants, and turkeys. Currently, surveys for dusky grouse, ruffed grouse, spruce grouse, gray partridge, and chukars are rarely or inconsistently conducted in the state, if at all and therefore those species will not be discussed in this report. Biologists were also asked whether or not they conducted hunter check stations, to describe what information was gathered at those check stations, and how those data were stored. I also reviewed existing papers, conservation strategies,

and management plans addressing S&I protocols for sage-grouse in Montana.

PRAIRIE GROUSE SURVEYS

Lek counts have been widely used as an index for grouse population change and to guide conservation decisions (Connelly *et al.* 2004, Garton *et al.* 2011). Even though the validity of lek counts for monitoring populations has been questioned (Beck & Braun 1980, Walsh *et al.* 2004) it probably remains the most widely used, and in many cases only method to monitor trends in numbers (Connelly and Braun 1997, Drummer *et al*. 2010).

In Montana sage-grouse are counted on leks in the spring of the year in Regions 3-7 while sharp-tailed grouse are counted annually in Regions 4, 6, and 7 and periodically in Region 5. For both species of grouse there have been 3 methods used when surveying leks: 1) block surveys where the survey unit is defined by distinct boundaries and survey coverage is complete for the geographic area, 2) route surveys that have a predetermined route and geographic coverage is linear, 3) count surveys on leks not included in block or route surveys, or in areas where activity is suspected but no previous surveys have been conducted (Montana Working Group 2005). In the block and route survey areas both historic as well as newly established leks are monitored and time is spent looking and listening for new leks within the survey area each year. Many biologists do a modified block survey where all known leks in an area are counted but little time is spent looking or listening for new leks.

The general technique for surveying sage-grouse leks is well described in FWP's "Management plan and conservation strategies for sage grouse in Montana-final" (Montana Working Group 2005), and for the most part methods are the same for sharp-tailed grouse. Observers visit a lek from ½ hour before sunrise, and depending upon the date of the survey, up to 2 hours after sunrise with optimal counts usually obtained from ½ hour before to 45 minutes after sunrise. An observation vantage point is selected that allows the observer to see the entire lek and all males and females are counted and recorded. Most counts are done from a vehicle although some are conducted by observers on foot, in blinds or from an aircraft. After getting a good initial count of males most observers move to another vantage point and count again. Many observers count leks a minimum of 3 times per visit to get the highest male count. When counting grouse from the air it is more difficult to get multiple counts in a single visit without flushing the birds. Often males are counted while displaying and then the aircraft will swoop in on the lek, flush the birds and another total male count is done while the birds are in the air. When possible, females are also counted when aerial surveys are done. In addition to the number of males and females data such as wind speed, sky conditions, temperature, time, date, and a subjective disturbance and count quality rating are recorded with each visit.

Wildlife biologists have identified a group of 88 sage-grouse leks for which a more rigorous survey protocol is followed. These leks are called Adaptive Harvest Management (AHM) leks. The leks are surveyed at the same time(s) in the breeding season each year, at the same time of the day, and the same amount of time is spent counting males each year. Each of these leks receives at least 3 counts, on separate days, each spring, and the highest male count is recorded for that year. In order to use a lek as an AHM lek there has to be 10 or more years of consecutive counts on the lek. The number of AHM leks has not changed since designated in 2005 even though most Regions have leks that now meet the requirement of 10 or more years of consecutive counts. Counts on AHM leks have been used in part to help determine season structure for sage-grouse and are considered as the best indicator of population trends. Sharp-tailed grouse have no AHM leks, and protocols are not as well established for sharp-tailed grouse surveys as for sage-grouse surveys.

Leks are assigned to 1 of 4 status types on an annual basis. Those status types are: 1) unconfirmed lek where there is only a single count with no subsequent counts within 10 years or a reported lek without supporting survey data, 2) confirmed active lek which has a minimum of 2 years with 2 or more males displaying on site (preferred) or 1 year with 2 or more males displaying on site followed with evidence of displaying (vegetation trampling, feathers, and droppings) during a subsequent year, 3) confirmed inactive lek which has 10 years with no males or sign of lek activity - supported by 3 years of surveys with

counts of zero conducted during that 10-year period, 4) confirmed extirpated leks where habitat changes such as sagebrush removal, urban development, oil development or overhead power lines have caused birds to permanently abandon a lek. Status types were originally established to describe sage-grouse lek surveys and were later adapted to describe sharp-tailed grouse lek surveys.

In addition to the surveys of individual leks, aerial surveys are periodically conducted in sagebrush grassland habitat to locate new leks. Habitat is surveyed by flying north-south transect lines starting in the east and surveying to the west away from the morning sun. The survey is flown approximately 100 to 300 feet above the ground, and transects are approximately ½ mile apart. Ideally, these surveys are conducted during the peak of hen attendance and breeding to maximize the amount of time observers are effective in finding new leks.

Data collected at grouse leks are entered into a statewide database on an annual basis, although sage-grouse data are much more consistently entered than sharp-tailed grouse data. Statewide databases for grouse were established in 2002 and are currently housed in the Wildlife Information System (WIS). Since 2002, all counts conducted on an individual lek are entered into the database, whereas pre-2002 data have only the highest male count entered, even if a lek had multiple observations in a given year. As with most of our biological data we have less complete information as one goes back further in time, and because of concerns associated with the potential listing of sage-grouse as endangered, the database for sage-grouse is currently much more complete than the database for sharp-tailed grouse.

Some regions also have conducted aerial and ground surveys for wintering sage-grouse. Aerial surveys are usually conducted following a fresh snow to facilitate finding tracks and to increase the visibility of birds. Areas of fairly dense sage are flown; usually on north/south transect lines located ½ mile apart. Surveys are usually flown from east to west however this is dependent upon time of day the survey is conducted. Unlike aerial surveys for leks, winter range surveys can be flown nearly any time of the day. Besides aerial surveys some Regions conduct ground surveys for wintering sage-grouse. These surveys are conducted by walking through sagebrush grassland usually accompanied by a bird dog. In both survey methods a waypoint is taken at the location of the flush site and a track log, showing the course taken is maintained. Some of the winter aerial and ground surveys have been entered into WIS, however many have not. I am not aware of aerial surveys being conducted for wintering sharp-tailed grouse.

Sage-Grouse Lek Surveys

Lek counts have been conducted in Montana since at least 1952-53, the earliest count recorded in FWP's statewide grouse database. In 2015, 79.6% of 2,013 counts were conducted between March 29 and May 2, 13.7% of the counts conducted earlier than March 29, and 6.8% of the counts were conducted after May 2 (Table 1). Ninety–eight percent of the counts in Regions 3-6 are done from the ground, while 36%

Table 1. Percentage of visits to sage-grouse leks by week, 2015.

Week	R-3	R-4	R-5	R-6	R-7	Total
March 8 - March 14	0.5%	0.0%	0.0%	3.1%	0.4%	1.1%
March 15 - March 21	0.0%	0.0%	0.4%	5.9%	0.7%	2.0%
March 22 - March 28	2.7%	7.0%	14.9%	14.9%	8.9%	10.6%
March 29 - April 4	23.0%	18.8%	14.9%	15.6%	7.8%	13.8%
April 5 - April 11	18.7%	19.1%	21.0%	16.8%	6.0%	14.0%
April 12 - April 18	29.4%	26.2%	16.3%	20.1%	18.7%	20.7%
April 19 - April 25	19.3%	21.5%	13.8%	14.9%	12.5%	15.1%
April 26 - May 2	4.8%	5.5%	17.4%	7.9%	28.7%	16.0%
May 3 - May 9	0.5%	0.4%	1.4%	0.9%	7.9%	3.4%
May 10 – May 16	1.1%	0.0%	0.0%	0.0%	8.4%	3.1%
After May 16	0.0%	1.6%	0.0%	0.0%	0.1%	0.2%
Total	N=187	N=256	N=276	N=572	N=722	N=2013

of the counts in Region 7 are done from the ground (Table 2). The main reason there are such a large number of leks counted from the air in Region 7 is that a small number of staff have a very large amount of sagebrush habitat with many leks and poor vehicular access to survey annually. By conducting aerial surveys biologists are able to get to many more leks in a year than if they tried to do as many ground surveys as other Regions.

In the spring of 2015 there were 1,745 sage-grouse sage-rouse leks with valid locations in the statewide database and 19 without valid locations (Figure 1). Of those 1,745 leks there were 521 unconfirmed leks, 991 confirmed active leks, 165 confirmed inactive leks and 68 leks that were confirmed extirpated.

Table 2. Number of visits to sage-grouse leks conducted by air and by ground (WIS, 12/20/15).

Region	Aerial Visit	Ground Visits	Unknown	Total Visits
3	0	179	8	187
4	16	240	0	256
5	14	262	0	276
6	0	567	5	572
7	448	255	19	722
Total	478	1,503	32	2,013

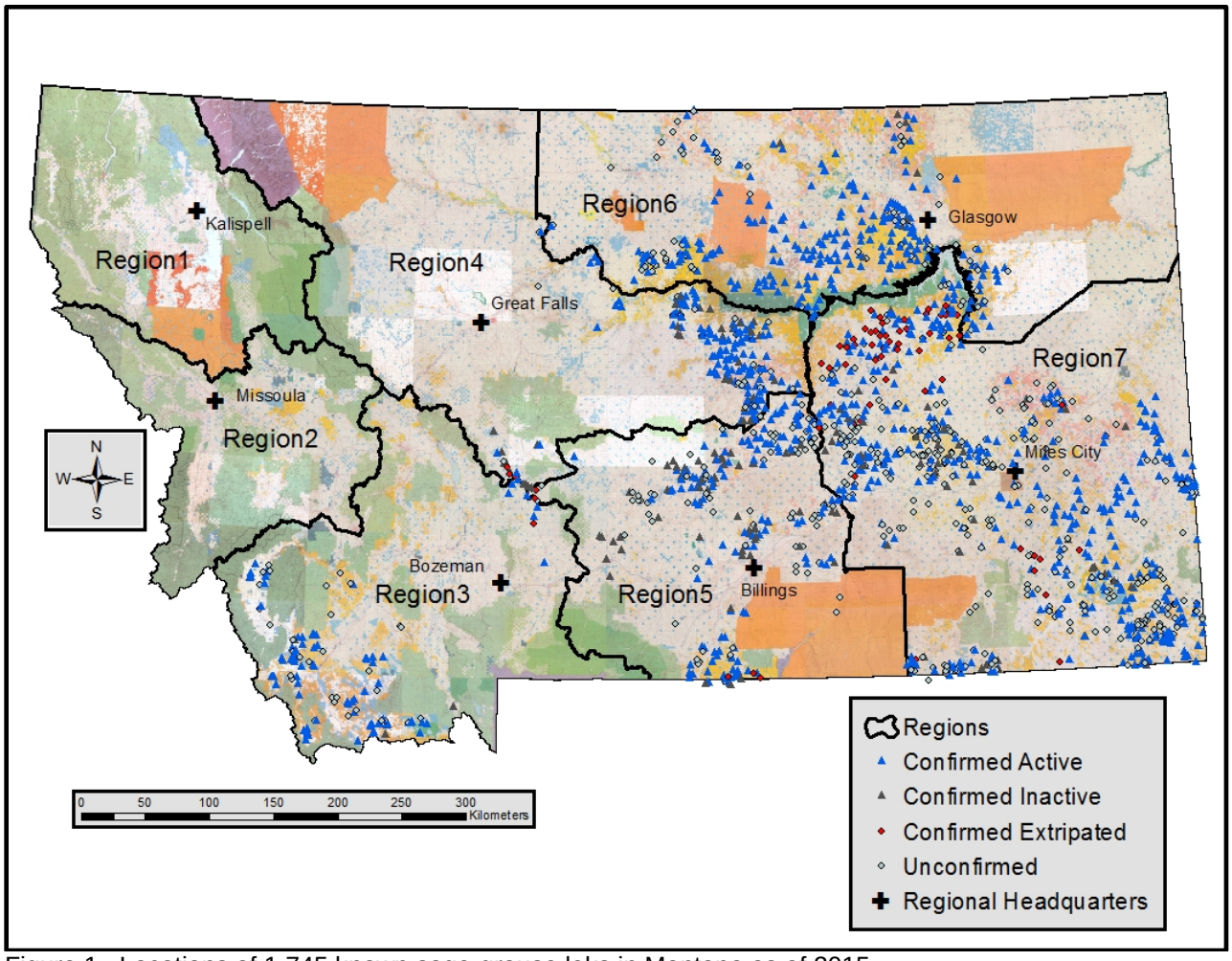

Figure 1. Locations of 1,745 known sage-grouse leks in Montana as of 2015.

Not all leks are surveyed each year, and in 2015 a total of 918 leks of which 454 had 1 or more males were visited a total of 2,013 times. On average, there were 2.2 counts per lek in 2015. In the spring of 2015, 8,337 males were counted on the 454 active leks for an average of 18.4 males per active lek (high counts used).

Some leks are not counted by FWP personnel, and in 2015 individuals from government agencies such as the Fish and Wildlife Service, Bureau of Land Management and the Natural Resources Conservation Service; along with non-governmental organizations such as the American Prairie Reserve, Audubon Society, National Wildlife Federation and The Nature Conservancy and industry such as the American Colloid Company along with numerous volunteers and landowners also surveyed leks.

Region Specific Sage-Grouse Surveys

In the spring of 2015, ~20 observers visited 1 or more leks in Region 3 (Table 3). A total of 1,256 male sage-grouse were counted on the 59 leks surveyed, and 9 of those leks had no males. Region 3 has 9 AHM leks (Figure 2).

Table 3. Number of sage-grouse leks surveyed in Region 3 in 2015. High counts were used to sum the number of males observed.

Lead Biologist	Region	Number of Leks Visited in 2015	Number of Leks With >0 Males	Number AHM Leks	Total Number of Males
Dillon	3	25	23	3	449
Sheridan	3	24	20	4	608
Livingston	3	2	2	2	36
Butte	3	8	5	0	163
Total Region 3	3	59	50	9	1,256

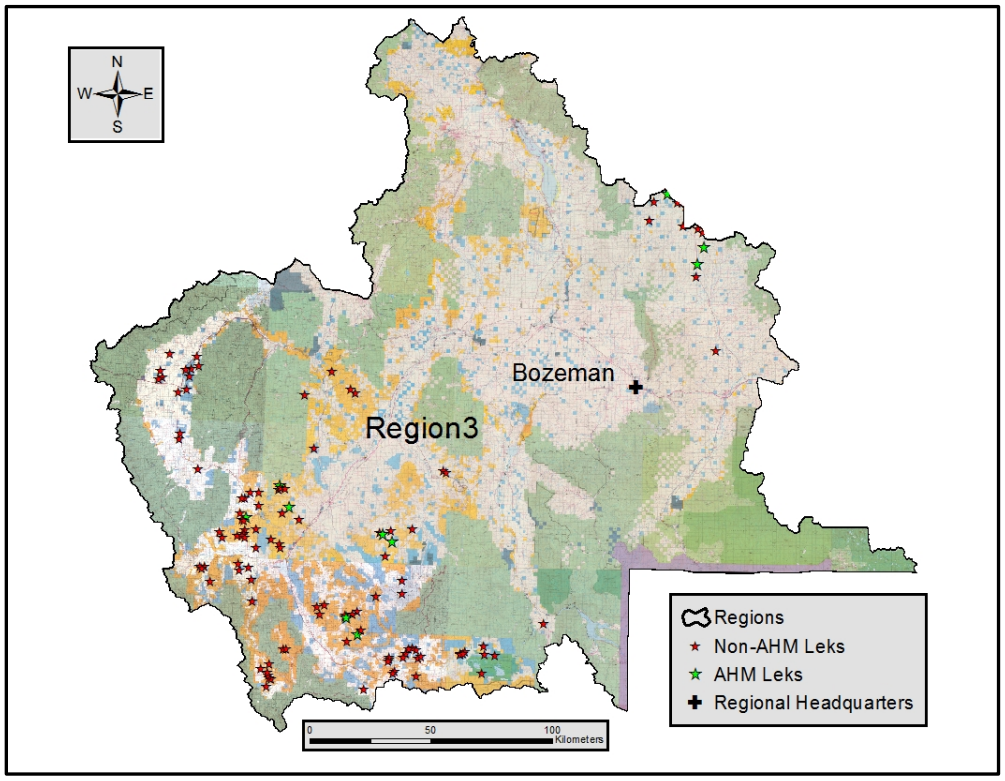

Figure 2. Location of sage-grouse leks surveyed and AHM leks in Region 3, 2015.

In the spring of 2015, ~17 observers visited 1 or more leks in Region 4. A total of 975 males were counted on 137 leks (Table 4). Sixty-six of the 137 leks had 0 males in 2014. Region 4 has 19 AHM leks (Figure 3).

Table 4. Number of sage-grouse leks surveyed in Region 4 in 2015. High counts were used to sum the number of males observed.

Lead Biologist	Region	Number of Leks Visited in 2015	Number of Leks With >0 Males	Number AHM Leks	Total Number of Males
White Sulphur	4	8	6	2	59
Great Falls	4	7	5	0	29
Conrad	4	1	1	0	13
Lewistown	4	121	59	17	874
Total Region 4	4	137	71	19	975

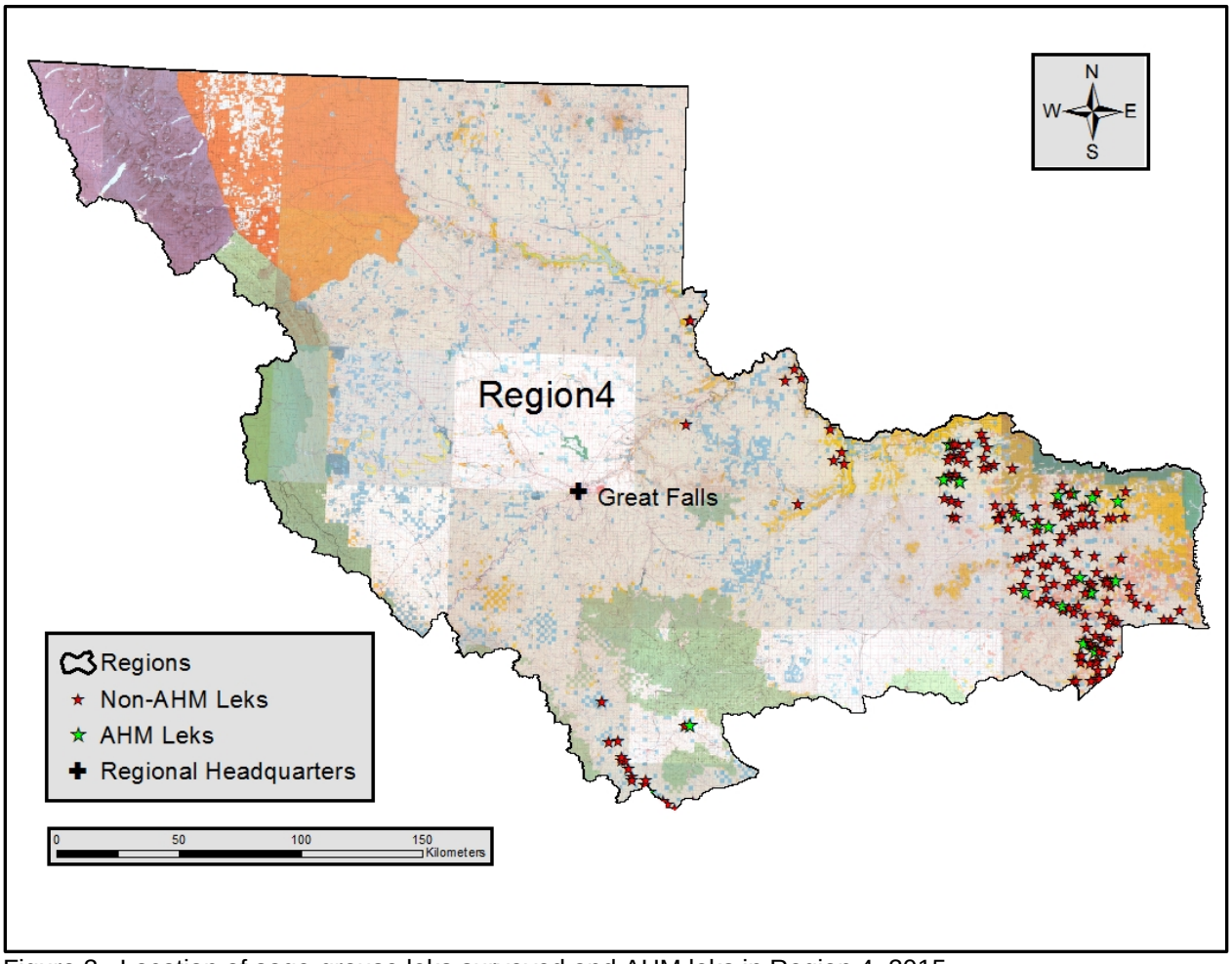

Figure 3. Location of sage-grouse leks surveyed and AHM leks in Region 4, 2015.

In the spring of 2015, ~13 observers visited 1 or more leks in Region 5, which includes several leks located in Wyoming. A total of 1,625 male sage-grouse were counted on 93 leks observed (Table 5). Twenty-three of the 93 leks had no males in 2015. Region 5 has 33 AHM leks (Figure 4).

Table 5. Number of sage-grouse leks surveyed in Region 5 in 2015. High counts were used to sum the number of males observed.

Lead Biologist	Region	Number of Leks Visited in 2015	Number of Leks With >0 Males	Number AHM Leks	Total Number of Males
Roundup	5	50	34	16	674
Big Timber	5	1	0	0	0
Red Lodge	5	36	31	11	899
Billings	5	7	5	6	52
Total Region 5	5	93	70	33	1,625

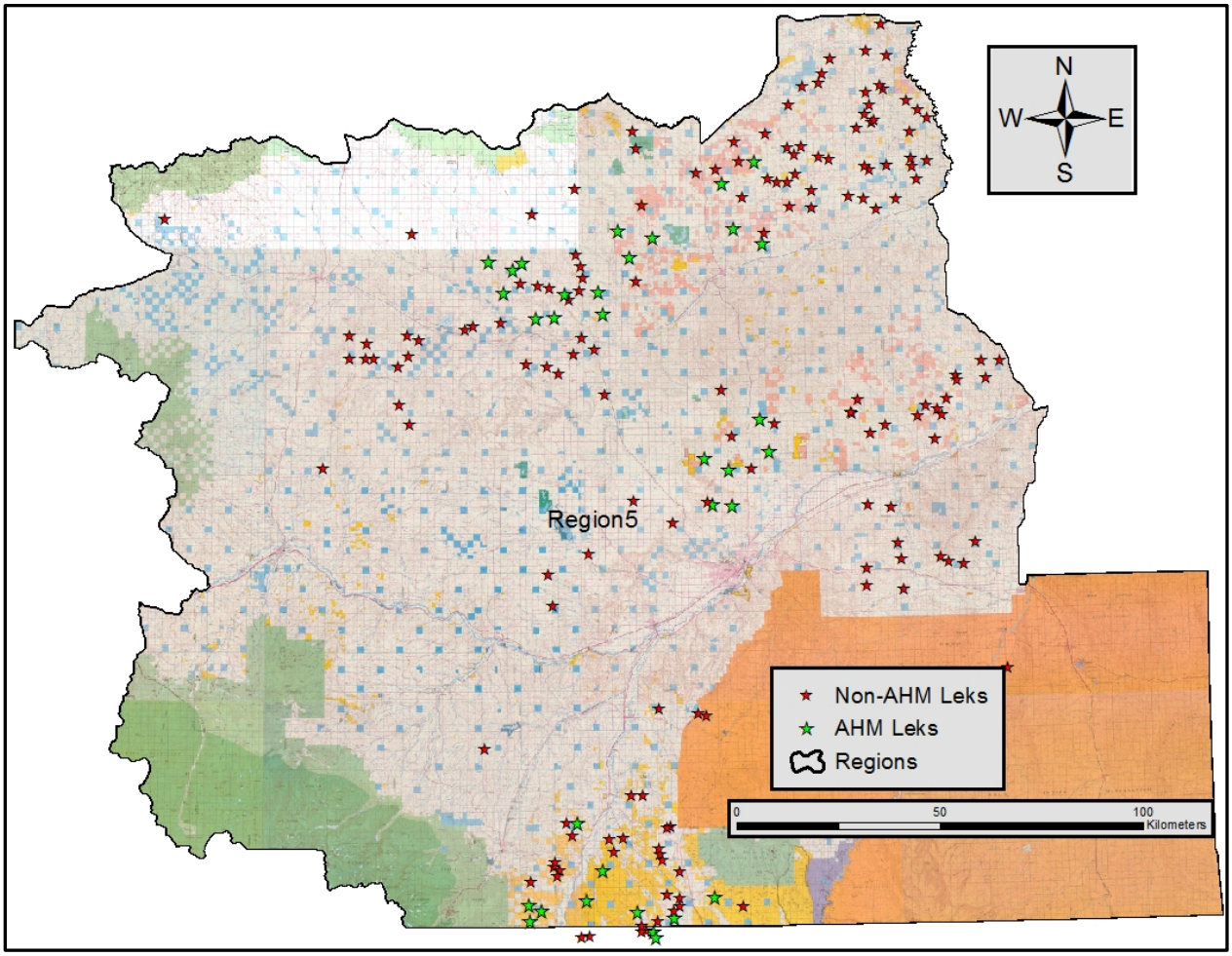

Figure 4. Location of sage-grouse leks surveyed and AHM leks in Region 5, 2015.

In the spring of 2015, ~45 observers visited 1 or more leks in Region 6. A total of 2,653 male sage-grouse were counted on 187 leks surveyed. Fifty of the 187 leks had no males in 2015 (Table 6). Region 6 has 15 AHM leks although access has been denied to count 2 of those leks (Figure 5).

Table 6. Number of sage-grouse leks surveyed in Region 6 in 2015. High counts were used to sum the number of males observed.

Lead Biologist	Region	Number of Leks Visited in 2015	Number of Leks With >0 Males	Number AHM Leks	Total Number of Males
Glasgow	6	87	60	11	1,138
Havre	6	35	23	0	261
Malta	6	65	54	4	1,254
Total Region 6	6	187	137	15	2,653

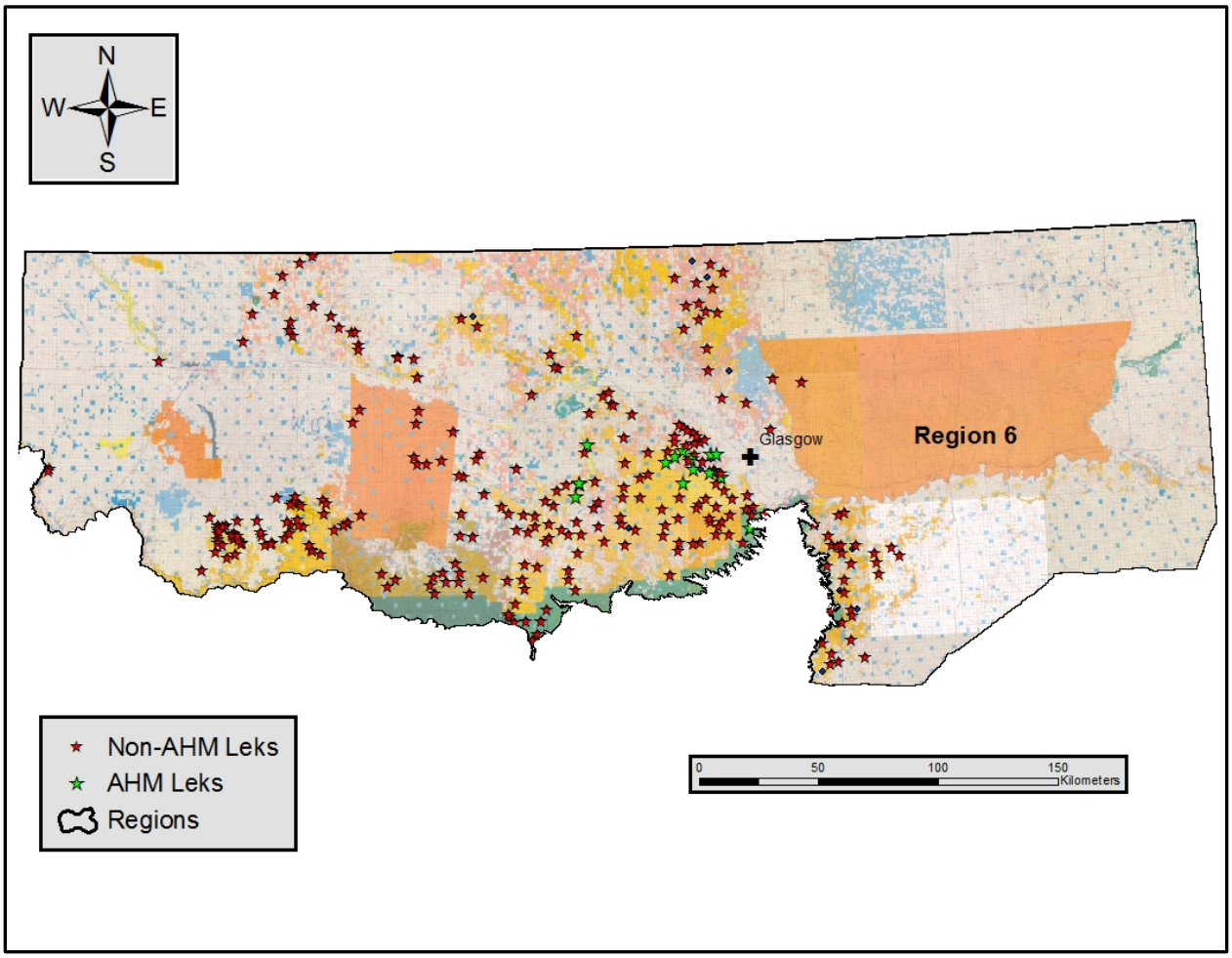

Figure 5. Location of sage-grouse leks surveyed and AHM leks in Region 6, 2015.

In the spring of 2015, ~18 observers visited 1 or more leks in Region 7 (Table 7). A total of 1,828 male sage-grouse were counted and 441 leks were surveyed in Region 7 in 2015. A total of 308 of the 442 leks had 0 males in 2015. Region 7 has 12 AHM leks (Figure 6).

Table 7. Number of sage-grouse leks surveyed in Region 7 in 2015. High counts were used to sum the number of males observed.

Lead Biologist	Region	Number of Leks Visited in 2015	Number of Leks With >0 Males	Number AHM Leks	Total Number of Males
Jordan	7	123	46	9	824
Broadus	7	107	32	2	406
Wibaux	7	28	14	0	127
Miles City	7	183	41	1	471
Total Region 7	7	441	133	12	1,828

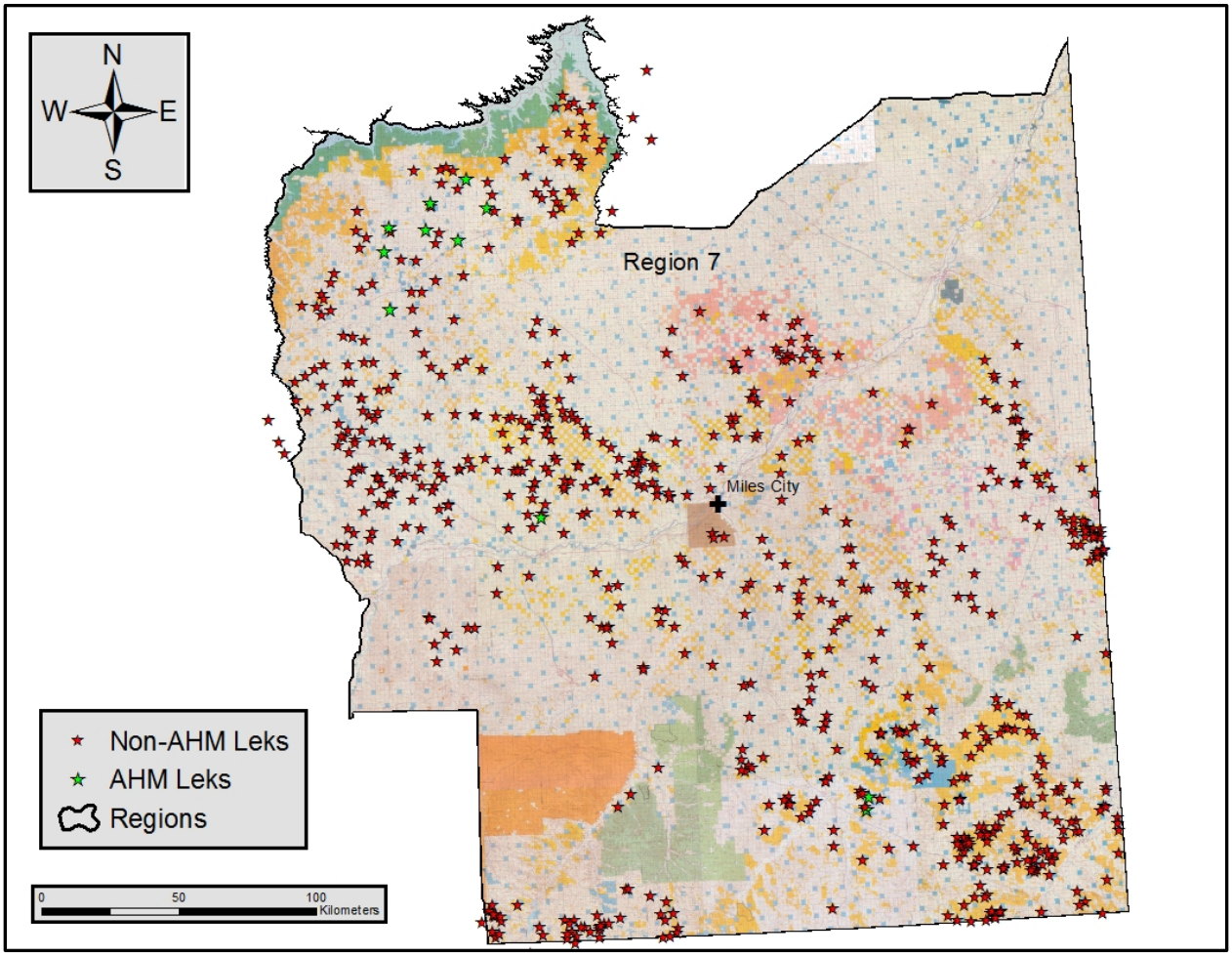

Figure 6. Location of sage-grouse leks surveyed and AHM leks in Region 7, 2015.

Sharp-Tailed Grouse Leks

Sharp-tailed grouse lek counts have been conducted in Montana since at least 1956-57, the earliest count recorded in FWP's statewide grouse database. In 2015, 70.3% of 269 counts made were conducted between March 29 and May 2, while 4.5% and 25.3% of the counts were conducted earlier and later than those dates, respectively (Table 8). The dates of sharp-tailed grouse lek counts overlap the dates for counts of sage-grouse leks although they tend to be a little later in the spring. All counts in Regions 4 and 6 are done from the ground, while 70.5% of the counts in Region 7 are done from the ground (Table 9).

Table 8. Number of visits to sharp-tailed grouse leks by week, 2015.

Week	R-4	R-6	R-7	Total
March 22 - March 28	0.0%	5.7%	4.9%	4.5%
March 29 - April 4	0.0%	16.2%	7.4%	9.7%
April 5 - April 11	9.5%	25.7%	12.3%	17.1%
April 12 - April 18	7.1%	33.3%	13.1%	20.1%
April 19 - April 25	2.4%	8.6%	17.2%	11.5%
April 26 - May 2	50.0%	0.0%	9.0%	11.9%
May 3 - May 9	28.6%	9.5%	6.6%	11.2%
May 10 – May 16	0.0%	0.0%	14.8%	6.7%
May 17 – 23	0.0%	0.0%	13.9%	6.3%
After May 23	2.4%	1.0%	0.8%	1.1%
Total	N=42	N=105	N=122	N=269

Table 9. Number of visits to sharp-tailed grouse leks conducted by air and by ground (WIS, 12/20/15).

Region	Aerial Visit	Ground Visits	Unknown	Total Visits
4	0	42	0	42
6	0	105	0	105
7	36	86	0	122
Total	36	233	0	269

In the spring of 2015 there were 2,094 sharp-tailed grouse leks with valid locations in the statewide database (Figure 7). Of those 2,094 leks, there were 1,713 unconfirmed leks, 361 confirmed active leks, 20 leks that were confirmed inactive and no extirpated leks.

Not all leks are surveyed each year, and in 2015 a total of 202 leks of which 126 had 1 or more males were visited a total of 269 times. On average, there were 2.1 counts per lek. In the spring of 2015, 2,363 males were counted on the 126 active leks visited, for an average of 18.8 males per active lek.

Not all sharp-tailed grouse leks are counted by FWP personnel, and in 2015 individuals from the Bureau of Land Management along with numerous volunteers and landowners surveyed leks.

Region Specific Sharp-tailed Grouse Surveys

In the spring of 2015, 3 observers visited 1 or more leks in Region 4 and counted 650 males on 41 leks (Table 10). In Region 6, 4 observers counted 828 males on 65 leks, and in Region 7, 10 observers counted 1,018 males on 101 leks. No leks were visited in Region 5 in 2015. Distribution of leks surveyed in 2015 is shown in Figure 8.

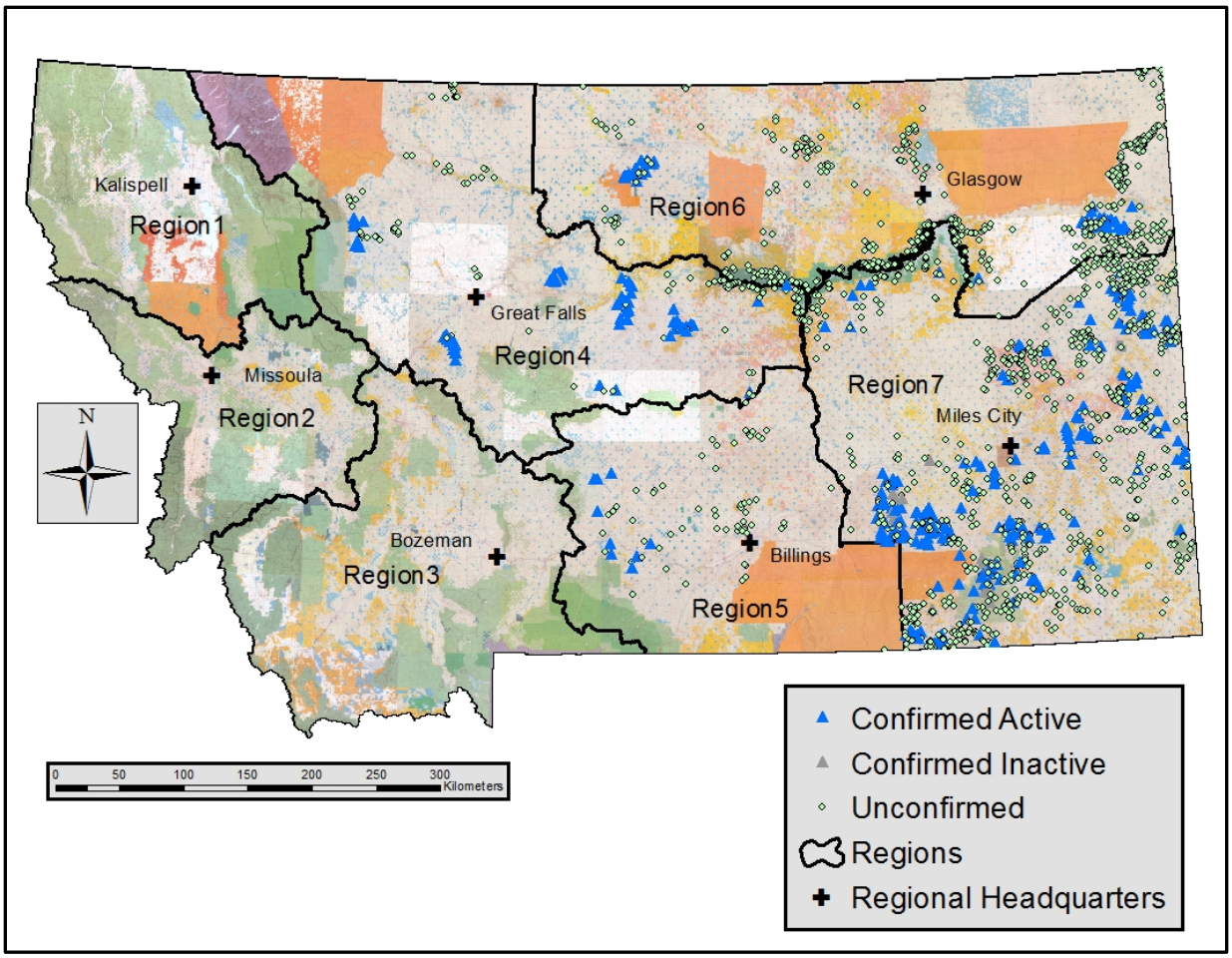

Figure 7. Locations of 2094 known sharp-tailed grouse leks in Montana as of 2015.

Table 10. Number of sharp-tailed grouse leks surveyed by Region in 2015 (from WIS 12/20/15).

Region	Number of Leks Visited in 2015	Number of Leks With >0 Males	Total Number of Males
4	41	34	650
5	0	0	0
6	60	37	695
7	101	55	1,018
Total	202	126	2,363

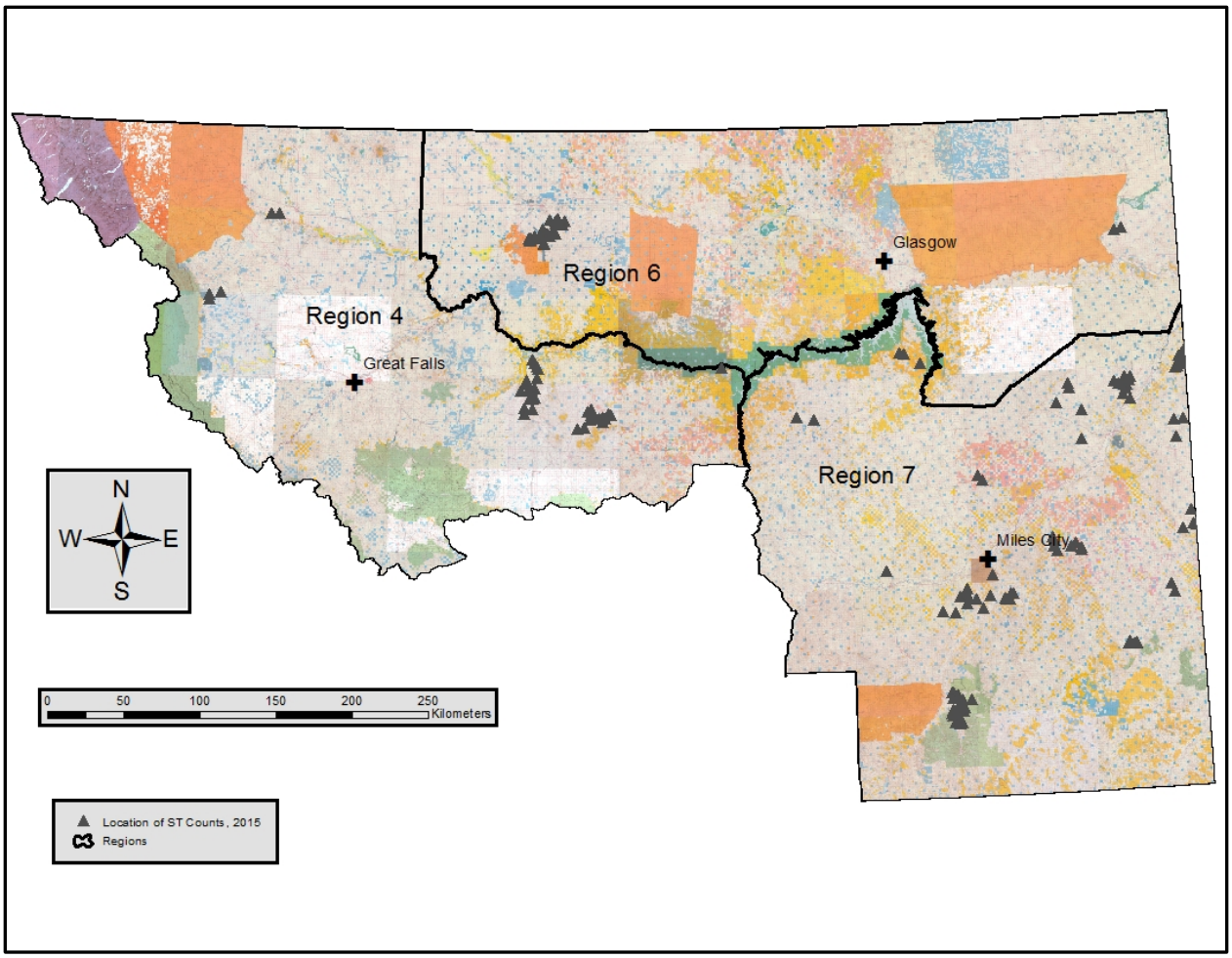

Figure 8. Locations of sharp-tailed grouse leks surveyed in Montana in 2015.

Pheasant Surveys

Pheasant crow count routes have been done for decades with some authors advocating for the use of crow counts as an index of population levels (Brown 1947, Kimball 1949, Gates 1966, Warner and David 1982, Snyder 1985, Luukkonen *et al.* 1997), some authors arguing that counts were best used to document only presence (Anderson 1983) and others questioning the validity of the techniques (Fisher *et al.* 1947, Rice 2003). In Montana the earliest known pheasant crow counts were completed in the Fairfield Bench area of Region 4 in 1947, and all Regions except Region 5 conducted crow counts between 1950 and 1973 (Weigand and Janson 1976). The number and distribution of pheasant crow count routes since 1973 has changed, and currently only Regions 4-7 conduct these surveys. In the spring of the year, usually the last week of April or the first 2 weeks in May, established routes along roads in pheasant habitat are traveled by vehicle. On those routes an observer stops periodically, most often at intervals of ≥ 1 mile and all audible crows from pheasants are recorded for a 2-minute period. Ideally, 3 replicates of each route are conducted on an annual basis, though this varies among routes and years. Best conditions for these surveys are days with light winds, relatively warm temperatures, no precipitation and little traffic. Surveys should be conducted from 30-45 minutes before sunrise to sunrise or completion, usually no later than 30 minutes after sunrise (Luukkonen *et al.* 1997). In the spring of 2015 Regions 4, 5, 6 and 7 had 11, 3, 11 and 3 routes, respectively (Table 11).

Table 11. Pheasant crow counts by Region, 2015.

Location	Region	Length/ Miles	Frequency	Number Replications
Freezeout Lake	4	20	Annual	3
Geraldine	4	20	Annual	2
Ulm	4	20	Annual	2
Valier	4	10	Annual	2
Agwam	4	10	Annual	2
Brady	4	15	Annual	2
Ledger/Conrad East	4	15	Annual	2
Bullhead	4	15	Annual	2
Grass Range	4	20	Annual	1
Denton	4	20	Annual	1
Sage Creek	4	20	Annual	1
Worden	5	10	Annual	3
Fly Creek	5	10	Annual	3
Bighorn River	5	15	Annual	3
Havre	6	15	Annual	1
Chinook	6	15	Annual	1
Wagner	6	15	Annual	1
Bowdoin	6	15	Annual	1
Vandalia	6	15	Annual	1
Medicine Lake 1[1]	6	10	Annual	1
Medicine Lake 2[1]	6	10	Annual	1
Medicine lake 3[1]	6	20	Annual	1
Big Muddy Route	6	15	Annual	1
Froid Route	6	15	Annual	1
McCabe Route	6	15	Annual	1
Brusett	7	25	Annual	?
Rosebud Creek	7	20	Annual	2
Sarpy Creek	7	20	Annual	2

[1] Usually Medicine Lake personnel conduct these surveys.

R-6 staff also conducts counts of pheasants on wintering areas in the Plentywood area of northeastern Montana. These surveys are conducted on 3 routes each having 10 stops. At each stop the number of pheasants visually observed, type of habitat and food sources are recorded. In part, these surveys are conducted to determine whether or not pheasant feeding programs in Region 6 are having an impact on populations.

Turkey Surveys

In Region 7 there is an aerial survey completed on the Yellowstone River from Glendive to Crane. This complete coverage survey is completed in conjunction with a white-tailed deer survey that is normally done in the first 2 weeks of January and again in the first 2 weeks of April. All turkeys observed during the survey are counted.

Check Stations

None of the Regions run check stations dedicated to collecting only information about upland game birds although most check stations in the eastern part of the state take wings from upland game birds. Wing barrels are also used to collect wings from hunters, and they are set up along county roads where bird hunters can deposit wings. Instructions at the barrels inform hunters to remove 1 wing from each upland bird harvested and place in the barrel. Wing barrels are usually emptied once a week by FWP personnel. In Region 3 wing barrels are used to collect wings in the core sage-grouse area in southwest Montana

and plans are underway to place wing barrels at sites in the Big Hole. In Region 6 wings are collected at the Havre check station, from wing barrels in south Phillips and Valley Counties, and during field contacts. In Region 7 wings are collected at all the big game check stations and from hunters during field contacts. The last year Region 5 collected wings was 2010, and Regions 1-4 don't collect wings at this time. In most cases, following the upland game bird season in February or March, biologists get together and "read" wings, taking a look at the past seasons productivity and sex ratios (Table 12).

Table 12. Data gathered from upland game bird wings collected in Montana.

Species	Age	Sex
Sage-grouse	Juveniles, Yearlings, 2+ Adult, Uncl Adult	Male/Female
Sharp-tailed Grouse	Juveniles, Yearlings, 2+ Adult, Uncl Adult	Male/Female/Unknown
Dusky Grouse	Juveniles, Yearlings, 2+ Adult, Uncl Adult	Male/Female/Unknown
Ruffed Grouse	Juveniles, Yearlings, 2+ Adult, Uncl Adult	Unknown
Gray Partridge	Juveniles, Yearlings, 2+ Adult, Uncl Adult	Male/Female
Pheasants	Juvenile/Adult	Male Only Hunting

Uses of Upland Bird S&I Data

Biologists believe that hunting seasons have little effect on upland bird populations, and population fluctuations are a result of habitat changes, weather conditions and other factors. Unlike hunting seasons for big game species, upland game bird hunting season structures don't change very often. In fact, bag limits for pheasants, mountain grouse, sharp-tailed grouse, and partridge have not changed since the 1992 season. Often changes in bird hunting seasons affect very large geographic areas and multiple species such as the change from a December 15 closing to a January 1 closing for pheasant, sharp-tailed grouse, gray partridge and chukars that took place in 2004. Sage-grouse are an exception to the rule that survey information is not used to set seasons. Between 2005 and 2013 the number of sage-grouse males per AHM lek was used to set seasons for sage-grouse in a modified adaptive harvest management format (Montana working Group, 2005). According to these guidelines, if the average number of males per lek exceeded 27.1 males per lek, then a standard season with a 4 bird bag limit would be recommended to the Commission. If the average number of males per AHM lek was less than 27.1, a conservative season or a 2 bird bag limit would be recommended. In addition, a recommendation to close the season would be made if lek survey levels were 45% or more below the long-term average (LTA) for 3 consecutive years. The trigger for reopening sage-grouse seasons includes lek counts above the 45% closure criteria for 3 consecutive years or a single year with lek counts above the LTA. In 2014 the hunting season for sage-grouse was closed in much of the state because of the potential for sage-grouse to be placed on the endangered species list, political pressure to quit hunting a species that could be listed as endangered, concerns about declining populations, and because that portion of the state that was closed met the criteria for closing seasons. Turkey seasons are often adjusted annually and on a smaller geographic scale than other upland game birds, but the S&I information described in this document is not used to justify those season changes.

Biologists reported using the data collected on upland birds for informing sportsmen, FWP personnel, landowners and others in the general public about upland game bird population trends. Biologists also reported that the public has an expectation that our management is based on scientific knowledge of wildlife populations and wanted to know that we were monitoring those populations. In addition, each year FWP makes predictions of the number of upland game birds hunters might expect to see in the upcoming hunting season. These predictions see widespread press coverage and appear in almost every major newspaper in Montana and in many publications outside the state. Data collected in the spring of the year, previous years' hunting and harvest estimates (from the statewide harvest survey), and other anecdotal observations help biologists to predict populations for the hunting season.

There were many other diverse uses for the survey data collected including descriptions of upland game bird numbers and trends in land purchase proposals, in comments on proposed state and federal land exchange projects, in comments on subdivisions, in comments on state land use proposals such as

grazing changes and to inform comments on oil and gas leases and drilling on federal and state lands. Data collected in MFWP surveys are used to speak towards potential effects of sagebrush removal, fires, road densities, and to measure effects of habitat changes on populations. In some cases funding for our surveys comes from sources such as the oil and gas industry, and those data may be used to describe potential impacts or to inform mitigation on a local level.

Finally, biologists stressed the importance of having long-term trend data available for informed comment on unforeseen future developments. A recent example of how long-term data might have been of use unexpectedly was when the United States Fish and Wildlife Service (USFWS) was petitioned to list sage-grouse as an endangered species. In the decision document the USFWS stated that "Range-wide numerous large populations of sage-grouse remain distributed across the landscape and are supported by undisturbed expanses of habitat". Montana's data, showing a relatively robust and well distributed population of sage-grouse probably helped the USFWS to find the listing of sage-grouse as "Not Warranted". Another example of the importance of long-term lek data was recently brought to light when oil prices skyrocketed. With rising prices oil and gas leases were issued for thousands of parcels of public land. On each of those parcels, FWP was expected to comment on the potential impacts to wildlife. In eastern Montana many of those leases were in prairie areas, and this development would potentially affect prairie grouse species. Having accurate information on the location of leks allowed decision makers to avoid many potential impacts to grouse.

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